UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

OFFICE OF REGIONAL COUNSEL

Mail Stop ORC-158
Phone Number (206) 553-1037
Fax Number (206) 553-0163

PLEASE DELIVER TO:	NAME:	Yvonne Vallette
	FAX:	503-326-3399
	PHONE:	503-326-2716
	OFFICE:	OOO
FROM:	NAME:	Deborah Hilsman
	PHONE:	206-553-1810

DATE: October 27, 2003

This transmission is 16 pages including this cover page.

ADDITIONAL MESSAGE: Here is a copy of Clarence Greenwood's oct. 24th letter to the Corps and his Exhibit B. Copies of his remaining exhibits including color photographs of the area and a newspaper article will be sent to you with a hard copy of his letter. I have not yet mailed out the October 27th letter the Eric Tenbrook. Lets discuss what our next step should be given this most recent letter. I'm around all week through 11am on Friday. Thanks.

BLACK | HELTERLINE LLP

ATTORNEYS AND COUNSELORS AT LAW

CLARENCE H. GREENWOOD
E-mail: chg@bhlaw.com

October 24, 2003 File No: K218-12

Mr. Larry C. Evans
Army Corps of Engineers
Portland District
Robert Duncan Plaza
333 S.W. First Avenue, 8th Floor
Portland, OR 97204

Reference: Bridgeview Vineyards, Inc.
Preconstruction Notification dated 08/21/2003
Corps No. 200300629

Dear Mr. Evans:

This letter is in response to your unsigned letter dated September 5, 2003, a copy of which is attached as Exhibit A hereto. On Page 2 of that letter, you raised eight items regarding Bridgeview's preconstruction notice.

In response to these items, we attach hereto as Exhibit B a memorandum dated October 13, 2003 prepared by William F. Galli. In it, Mr. Galli responses specifically to each point and reconfirms that the August 7, 2003 plan, with the minor modifications as noted in the memorandum, complies with Technical Notes No. 12 and the Biop Opinion.

There are several aspects to the agency's September 5, 2003 unsigned letter that are troubling. First, we are troubled by Mr. Galli's general comment that the agency did not study his report before issuing the September 5, 2003 letter. This is troubling, since the September 5, 2003 letter has delayed the work beyond the in-water work period set by the Oregon Fish and Wildlife Division for 2003. This leaves Bridgeview's property exposed to erosion for another winter. We note that the erosion started due to the high water during the winters of 1996 -1997 and 1997-1998. This resulted in a gravel berm on property above Bridgeview being washed into the channel plugging it. This caused the stream to commence eroding the southern bank. The owner has been endeavoring to remedy the situation since the

summer of 1998. Due to various agency actions, to date, the repair has been delayed and the erosion continues. To date, roughly seven acres of upland and a stand of 200 mature trees have been lost. In addition, the farm access road that was on a portion of the seven acres has been washed out. The creek is now undermining another vineyard access road next to the vineyard (Block 500). The delay will cause further erosion. The troubling aspect of the September 5, 2003 letter is, based on Mr. Galli's comments, it seems the agency's concerns could not have been handled in a much more efficient manner by having an agency official talk directly to Mr. Galli to confirm the Technical Notes and Biop were being followed. This type of a proactive approach would have allowed the work to have occurred before the in-water work period expired and not have left the owner exposed to erosion during the winter of 2003-2004.

Second, your letter states (last paragraph) that application will be processed. We do not understand the Nationwide General Authorization to involve an application. As we understand the general authorizations, they are a general permitted activity. If the August 7, 2003 plan (activity) is in compliance with the Technical Notes 12 and the Biop, no further agency action is necessary before the repair work can be completed. If this is not the case, we request that you confirm this in writing.

An additional troubling aspect of the agency's letter is Paragraph 2 on Page 1 of the letter. In it, you state that the Corps had considered Bridgeview's position that the work is exempt under 33 USC §1344(f)(1). However, the agency's letter does not discuss in any way, shape or form why the exemption is inapplicable.

The Clean Water Act contains exemptions. Section 1344(f)1) reads:

> (f) Non-prohibited discharge of dredged or fill material
>
> (1) Except as provided in paragraph (2) of this subsection, the discharge of dredged or fill material--
>
> **(A)** from normal farming, silviculture, and ranching activities such as plowing, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices;
>
> **(B)** for the purpose of maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters,

causeways, and bridge abutments or approaches, and transportation structures;

(C) for the purpose of construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches;

(D) for the purpose of construction of temporary sedimentation basins on a construction site which does not include placement of fill material into the navigable waters;

(E) for the purpose of construction or maintenance of farm roads or forest roads, or temporary roads for moving mining equipment, where such roads are constructed and maintained, in accordance with best management practices, to assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired, that the reach of the navigable waters is not reduced, and that any adverse effect on the aquatic environment will be otherwise minimized;

(F) resulting from any activity with respect to which a State has an approved program under section 1288(b)(4) of this title which meets the requirements of subparagraphs (B) and (C) of such section,

is not prohibited by or otherwise subject to regulation under this section or section 1311(a) or 1342 of this title (except for effluent standards or prohibitions under section 1317 of this title). (Emphasis added.)

It is clear that others are allowed to go into the streams in Southern Oregon to protect roadways from being washed out under this exemption. We attach as Exhibit C a repair activity which involves the Holland Loop Road just above the area of the Bridgeview's proposed repair. That repair was done by end dumping seven truck loads of aggregate directly into Sucker Creek during January, 2003 to protect the road and power line from being undercut and washed out during the winter of 2002- 2003. We also attach Exhibit D which is pictures of repair activity on Little Deer Creek during the in-water work period of 2003. In this instance, the crawler tractor was right in the creek bed dozing aggregate to shore up the bank to prevent undercutting of a road. The repair channelized the stream in this instance.

b

The reason others are allowed to do road repair and maintenance is Section 1344(f)(1) exempts road maintenance (and this exemption applies whether the road is public or private, such as the Bridgeview's vineyard access roads). Despite this, the agency's letter of September 5, 2003 states that Bridgeview, in endeavoring to repair and maintain its vineyard road from being undercut and washed out, is somehow not exempt.[1] Please explain why this exemption is not applicable.

In Bridgeview's case, the additional exemptions for repair of riprap, groins and levies is also applicable. In 1964 and again in 1971, Bridgeview's property had levies placed and riprapped to protect it from erosion and flooding. These levies and riprap extend roughly 2,500 feet along the southern bank of Sucker Creek. Further, right below Bridgeview's property additional levies and riprap were placed to contain and direct Sucker Creek as it goes under the bridge on Holland Loop Road. The 1996-1997 flooding and commencement of erosion attacked the toe of the existing riprap and levy on Bridgeview's property. This necessitated the repair and restoration of the levy and riprap. The Section 1344(f)(1) exemption applies to repairing levies, groins and riprap. Please explain why this exemption is not applicable.

Equally clear is that the exemptions for upland soil conservation. That exemption allows repair and maintenance to preserve upland soils from being eroded. Since the Sucker Creek channel was plugged by gravel from an upstream berm in 1996, Sucker Creek has attacked (eroded) the southern bank. It did so right at the toe of the preexisting riprapped levy. It has now eroded the upland bank roughly 75 to 100 feet behind that toe. Roughly seven to eight acres of upland have been lost since 1996, eroding the entire 150 to 175 foot buffer that previously existed between vineyard (Block 500) and Sucker Creek's southern bank. Compare photo attached as Exhibit E to the photo in the Galli report. The current plan is designed to halt further erosion of the upland. Please explain why the upland soil conservation exemption is not applicable.

[1] We further note that Bridgeview had an additional farm road that used to run along the southern bank of Sucker Creek that allowed passage of heavy equipment to adjoining properties without going out onto the paved Holland Loop road. This road was roughly 100 feet north of the current vineyard road. That road was used until 1998 when it was undercut and washed out.

b

Although Bridgeview agreed with the EPA to send the pre-construction notice under 33 USC§1344(e), it seeks clarifications on what repair and maintenance activities the 33 USC§1344(f)(1) exemptions cover.[2] These exemptions, and the regulations thereunder (33 CFR § 320 et seq.) are laws that have to be followed. If the Corps' position is to do nothing more than state a conclusory opinion, without any rationale or other explanation, Bridgeview will have to pursue with regional or national office the meaning of these exemptions so it understands not only how they apply to the pending repair, but also to future repair and maintenance activities Bridgeview may have to undertake. Bridgeview prefers to work with local agency officials, but a stonewalling approach as to the applicability of the exemptions by the local officials is unacceptable.

Nor is this the first time that federal agencies have apparently ignored the exemptions and asserted Clean Water Act authority over exempt activities. There is the Leonard Zylstra case, CWA Docket No. 10-2002-0124, who was harassed by agencies to the point that he left his agricultural pursuits and return to contracting, ultimately dying from a heart attack due to the strain and stress. Mr. Zylstra's property was located on Little Butte Creek. He removed the gravel and log debris plug on his property to restore his hay meadow in 1997; within one year of the flooding. He did so during the in-water work period. His activity was clearly covered by the exemption in regulations, 33 CFR §323.4(a)(1) and (2). Although due to his death, the case against him has been dismissed, his widow recently sent a newspaper article which is enclosed as Exhibit F. As the widow's note stated, it is very troubling to see thousands of cubic yards of material being moved at the mouth of the Little Butte Creek when that same creek ruined the Zylstra's hay field.[3] He was essentially driven off his ranch, for doing exempt repair and maintenance work.

Bridgeview has given the required preconstruction notice and supplied the hydrologist plan in conformance with all applicable requirements for a streambank stabilization project. They complied with general authorization under Section 1344(e) for repair work.

---

2 On February 20, 2003, the EPA sent us a letter on this subject. That letter confirmed that the EPA was not relying on the recapture provision (33 USC §1344(f)(2). It also endeavored to address the exemption, but did not address the three specific exemptions set forth in this letter. It is for this reason this letter requests an explanation of these exemptions.

3 Even more amazing is the fact that a good deal of the harm done on the Little Butte Creek was due to the U.S. Forest Service, Oregon Fish and Wildlife and other agencies placing logs in the Little Butte Creek on Forest Service lands above the Zylstras' property. These logs were cabled to rocks. In the 1996-1997 floods, all of these were washed out doing massive damage downstream.

Bridgeview has done so despite the fact that Section 1344(f)(1) exemptions also apply to this repair and restoration plan.

Accordingly, Mr. Kerivan respectfully requests that the August 7, 2003 repair and restoration plan be confirmed as being in conformance with the Technical Notes for the reason stated in the Galli Memorandum so the repair work can proceed under the General Authorization. We also respectfully request clarification of why the activity is not exempt so the owner of the property can understand the law as to this repair as well as future repairs. We request a prompt response on these issues.

Sincerely yours,

Clarence Greenwood

Clarence H. Greenwood

CHG:ny
Enclosures
H:\Chen\K218-12\Corr\Evans Ltr.doc

cc w/encs: Mr. Robert Kerivan
Deborah Hilsman, Esq.
Mr. Robert Lohn, NOAA Fisheries

THE GALLI GROUP
Geotechnical Consulting

02-2846-01
October 13, 2003

MEMO

TO: Clarence Greenwood
FROM: William F. Galli, P.E.

Subject: **Agency Correspondence Response**
Bridgeview Winery Erosion Control
Cave Junction, Oregon

In accordance with your request, we have reviewed the unsigned September 5, 2003 letter from the Corps, an e-mail from the EPA and the enclosed BIOP by NOAA. Our response will follow the order of the eight items set forth on the second page of the Corps letter.

Before addressing the items raised by the Corps we make the following general observations. The content of the correspondence indicates to me the erosion control plan our firm submitted was not carefully read. It also indicates that these agencies are requesting several design constraints that are contrary to the information set forth in their own Technical Notes and BIOP documents. The Corps letter and EPA e-mail provide no reasoning as to why they are suggesting certain changes to the plan that appear to be contrary to the alternatives allowed for in Technical Notes No. 12 or the NOAA Opinion (July 8, 2003 and supporting referenced documents).

Additionally, our August 7, 2003 report fully considered site geometry, bank configurations, anticipated flow velocity and direction during high water events and specific allowances and requirements made in the two aforementioned documents for such site specific design. It is improbable that a design that does not take into account the extreme nature of the specific site conditions will achieve the stated goals of 1) decreased bank erosion, 2) stable riparian vegetation zones and 3) habitat improvement.

EXHIBIT B
PG 1 OF 9

1. Barb Height

The primary purpose of these barbs will be to help stabilize this section of "failing" streambanks; thus conserving the upland and preventing the vineyard road from being undermined. The bank currently has a high (8 feet to 12 feet) bank with the upper portion being near vertical to undercut. The bank generally consists of gravel and cobbles in a silt and sand matrix with sandy silt topsoil at the very top. These materials are unstable and subject to severe erosion and scour at relatively moderate flow velocities. In order to promote long-term vegetation growth on this streambank the bank area must be stable. Installing barbs that do not intercept or deflect high flow from the upper bank area will allow the upper bank area to be progressively eroded away. This prevents establishment of long-term permanent vegetation growth.

We believe the barbs need to be sloped up at the bank end to an elevation within one or two feet of the top of the bank. We will alter the barb design in Figures 7 and 8 of our report to reflect the above listed lowered top elevation at the bank. Our view is that any lower height at the bank is a short-sighted approach that will still allow erosion of the upper bank during high water. This will result in continued erosion of the upland, scouring away of the upland vegetation and undermining of the vineyard road.

2. Build the Flow-Redirection Structure (Barb) Primarily of Wood or Otherwise Incorporate Large Wood at a Suitable Elevation in an Exposed Portion of the Structure or the Bank Key.

We find this to be unsound design advice for the given site. Our experience on other streams and rivers in Oregon as well as our discussions with Oregon Division of State Lands and Oregon Department of Fish and Wildlife personnel indicate that much of the large wood embedded in such structures was washed away in the January 1, 1997 flood. High water events of lesser magnitude have also caused significant damage to such wood embeds. The dislodged logs with root wads can cause damage downstream. This also creates voids within the structure that can cause greater structure failure by high streamflow velocities. NOAA's own BIOP indicates that "Rock may be used instead of wood for the following purposes" …."To construct a flow-redirection structure as described above". It also says to use large wood "whenever possible". It does not stipulate that large wood must always be used. This same BIOP also references A Guide to Placing Large Wood in Streams, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, May 1995. This is referenced in particular with regard to the point of incorporating large wood into such water redirection structures. Under Stream suitability for large woody debris additions, we find the following:

a) Is the stream fish bearing? Yes!
b) Is the riparian area well stocked with conifer? This seems to be no but we assume that does not matter.
c) Does the stream meet width and slope requirement? As noted, streams with more stream power can lift and move large wood. The answer to this is No!

This paragraph goes on to say "Basically a stream with less than a 40-foot bankfull width and little to moderate stream slope is eligible for the kind of in-channel large woody debris placement work described in this publication". Also on the next page of that publication their Figure 1 displays three major areas that are combinations of bankfull width and stream slope. These are as follows 1) Ideal conditions, 2) Within acceptable conditions and 3) Outside Acceptable Conditions. This reach of Sucker Creek falls far into the Outside Acceptable Condition zones with a slope on the order of 1% to 1½% and bankfull width of between 180 and 220 feet.

In the section on Placement Strategies for large woody debris, they provide a list of locations where wood placement "is too likely to cause damage and should be avoided". The first location is "Near high, actively eroding stream banks, where placement would aggravate the erosion". This site has a high, actively eroding bank. It also will be subjected to high stream flow velocities (10 to 18 feet per second or more). These conditions make it likely that the wood will be carried away during high water which can cause damage to the structure as well as damage to downstream areas. Further on the publication again stresses the need to avoid damage downstream by movement of the wood debris embedded in such a structure.

It becomes readily apparent that there will be sites and stream conditions that are not conducive to the use of large wood. This is one such site. Therefore, based on all of the above, we recommend that logs with root balls not be used as part of the structures on this site.

3. Barb Key Backfill

The August 7, 2003 plan meets this requirement. The area of bank above the riprap bank key will be backfilled with compacted native materials excavated from the bank key area. This will be a mixture of cobbles, gravels, sand and silt. The upper 18 inches will be backfilled with silty sand to sandy silt soil which was excavated out of the surficial area of the key excavation. This upper soil layer will be placed with only slight compaction (i.e., that needed to support rooted vegetation but loose enough to allow plants to germinate and root well).

Note: We have included in our Construction Specifications (Item 19 Topsoil) recommendations for scarification of the upper 4 inches of soil areas that have been densified by construction traffic. We have attached Construction Specifications—Addendum No 1, which will stipulate that the soil scarification and revegetation should extend 50 feet back from the top of the bank, where such area has no vegetation an does not encroach on the vineyard or vineyard access road.

4. Barb Length

The barb lengths selected were arrived at by repeated iterations of the vector analysis for barb length and spacing. Due to the extreme curvature of this reach of stream a somewhat closer than normal spacing and longer than normal length must be used on some barbs to provide the necessary protection of the existing steep soil and gravel

streambank, upland soil and vegetation and vineyard road. It should also be noted, that while the correspondence is insisting on a maximum length of ¼ the bank full width, there is no final length requirement stated in Technical Notes No. 12. Under General Design Guidance, section (5) Length, it states "For most barbs" not all barbs, the length should be ¼W. It also reasons that you do not want to install barbs that will alter the meander pattern of the stream that will affect the opposite bank or will "channelize" the stream. It also states that to be affective the barbs must "influence the dominant flow path". Elsewhere in the Technical Notes it states that the barbs must be of sufficient length and spacing such that stream flow not affected by a barb does not impact the streambank prior to being deflected at the next downstream barb.

All of the above indicates that the ¼W length is a general guideline that must be altered or configured to meet specific site needs. At this site the extreme curvature of the bank to be stabilized (in order to create habitat and lessen current impacts) dictates that barb length and spacing be somewhat out of the average. As stated in the Technical Notes, ("The subsequent barb should be placed so that the flow will be captured in the center portion of the barb before the stream flow intersects the bank"), unimpeded streamflow, particularly during high water when flow velocities are high, must not be allowed to impact the unprotected bank.

To accomplish this we have arrived at what we believe to be a good balance between barb length and spacing. The barb lengths shown vary from 1/3W to 1/5W. Measured widths of the flow (from aerial photographs) during events less than the channel forming event indicate the W varies from 180 feet to more than 220 feet in this reach of Sucker Creek. Without the reopened channel (in the 1995 channel location) carrying a large percentage of the flow, the channel forming flow width would be between 180 and 210 feet. At this discharge rate much of the gravel bar created on the north bank opposite the sharp meander which constitutes the site is covered with water. This creates a wide shallow channel with a deepened thalweg zone close to the south bank.

Current width to depth ratios of between 25 and 60 are contributing to stream heating. Continued channel widening will increase width to depth ratios by 1) increasing the width and 2) channel filling downstream which results in a width to depth increase. Therefore, stopping the widening of the channel at this location is desirable and beneficial for aquatic and riparian habitat. Given the channel characteristics at this site, these are reasonable lengths for the barbs. Review of the layout and flow direction during bank full events will readily show that the recommended barbs will not change the meander pattern of the stream, will not create an adverse effect on the opposite bank and will not channelize the streamflow. They will prevent additional southward migration of the streambank (such continued migration will prevent long-term vegetation growth) and should lessen additional scour and erosion of the north bank just downstream of the site. Please see Photo NO. 4 of our report dated August 7, 2003. The conditions are at a flow somewhat less than bank full conditions. As can be seen, the extreme curvature of the site bank will cause erosion and scour of the north bank downstream of the site (as is always the progressive movement and life of a meandering stream). The opposite bank

will be eroded away until both sides have established deep meanders, which will be "cut off" during high water events, with the process starting over again. Stabilizing this south bank meander will prevent it being enlarged and will help prevent bank degradation downstream on the north bank. This will allow for continued long-term vegetation growth along both banks, which accomplishes the long-term goal of sustainable habitat with less adverse impacts on the stream. Therefore, it will not be beneficial to the stream and bank habitat to shorten the proposed barb lengths. For those reasons we have left the lengths as provided in our earlier report.

Accordingly, we confirm the barbs as proposed in the August 7, 2003 report meet all requirements of the Technical Notes and BIOP and are the minimum that will result in the proper stabilization of this area to protect upland soils, vegetation and the pre-existing vineyard road.

5. Individual Rock Placement; No End Dumping
The August 7, 2003 plan meets this requirement. See our notes on Figures 6, 7 and 8 regarding stone interlock and "DO NOT End Dump". We have included an additional caution in the attached Construction Specification-Addendum No. 1, to make this abundantly clear.

6. Total Distance Between Upstream and Downstream Flow Redirection Structures to be 150 feet or 2.5 Bankfull Channel Widths.
As discussed earlier in this letter, the "bankfull" channel width in this reach varies from 180 feet to 220 feet. Taking the shortest width of 180 feet, 2.5 times this is 450 feet. The distance (measured along the top of the bank) from centerline to centerline of the upstream and downstream barbs is 230 to 235 feet. Therefore, the present design falls within this criteria and does not need to be redesigned.

7. Include Woody Riparian Planting
Item 20 of the Construction Specifications requires revegetation. Accordingly, the August 7, 2003 plan meets this requirement. In general, woody species such as willows, cottonwoods and other plants will be used to create live stakes and other plantings along the bank. These will be planted on a 4-foot by 4-foot grid in all areas where vegetation has been removed during construction, back to the vineyard access road along the north side of the vineyard. Mine bark and Red flowering currant could also be used in the drier areas. Scattered trees such as Oregon Ash, Ponderosa Pine, Alder or Maple could be planted. These would be spaced at 10 to 15 feet apart along the top of the bank, at between 4 and 6 feet back from the top of the bank. Three rows of trees would be planted where there are no existing trees. Disturbed soil areas between these plantings would be covered with straw and planted with annual ryegrass or summer wheat. These plant types were suggested by ODFW personnel in the Rogue Watershed office.

There is one area where upland planting would be limited. This would be where the bank has eroded to virtually the edge of the upland vineyard road. The space available to do

upland plantings will be dictated by site conditions (i.e., there is no place to plant back from the top edge of the bank until the bank rebuilds itself by deposition).

8. Reduce Barb Width

The Corps requests reduction "to minimum necessary to accomplish project goals". The EPA e-mail indicates that "the bottom width of the barbs should be no wider than 6 feet". The Technical Notes indicate barb width "generally ranges from one to three times the D_{100}". Also that "the width does not need to be wider than two rock diameters". However, the Technical Notes also state "The barb width may need to be increased (10 to 15 feet total width on top) to accommodate construction equipment".

The top width of 12 feet used in our August 7, 2003 design report and drawings was based on the need to 1) keep construction equipment out of the stream, 2) accommodate construction equipment on the top of the barb and 3) have a completed barb that will resist the extremely high flow velocities during high water events that occur on this stream. The barb width can be reduced only if construction equipment enters the water while placing much of the stone. To accomplish maximum stone interlock, each stone must be able to be placed with the equipment. Therefore, equipment with a "thumb" or other "claw-type" apparatus that can "grab" the stone and place it at the desired location and orientation must be used. Typical reach on such equipment would be on the order of 15 to 20 feet (for moderately large excavators). With heavy stone (0.8 to 1.2 M.) the equipment cannot maximize its reach due to the threat of tipping over forwards. Therefore, while the last 15 to 20 feet at the end of the barb could be reduced in width, the remainder of the barb back to the bank will 1) have to be wide enough for the equipment or 2) the equipment will have to work "in the stream". It is not feasible to narrow the base of the barbs to six feet as the barbs approach the bank. The reason is due to the height of the bank (10 feet to 12 feet) and the vertical nature of the same. Even with the barb height stopping at two (2) feet from the top of bank (as discussed under Point 1). The height of the barbs will be in excess of 8 or 9 feet. The base for a barb of this height would have to be much broader than six feet to remain stable.

Option I would entail barbs that are 10 to 12 feet wide (enough to accommodate construction equipment) at the top for the first 20 to 40 feet (depends on total length of barb) out from the bank. They would be constructed from the bank, out into the stream. The last 15 to 20 feet would be tapered to 8 feet then to 6 feet wide at the tip. We recommend individual large stones be used to form the end of the barb.

Option II would entail a barb with 8 foot width at the top of bank and a 6 foot width at the end. Equipment would have to cut an access ramp at the bank key area and work within the stream to construct the barb because the top width would be too narrow to allow construction equipment to operate on top of the barb. Again, the far end of the barb should be constructed of single large stones with staggered and then double wide stones being used to construct the base of the barb as you move closer to the bank. When the barb construction has reached the bank the deepened bank key area would be infilled with

the angular riprap stone up to the designated bank forming depth (then with soil as listed earlier in this report).

We are not sure that such a lessened barb would withstand extreme high water events such as the flood flows of 1964 and 1997. In either case the embed below the base of the stream should remain the same and the downstream edge at the top of the barb must be linear. We prefer the wider barbs in Option I to keep the equipment out of the water and to provide a more stable structure during the high velocity flow events.

9. Current Barb is to be Modified so it Conforms to Specifications of the Other Barbs as to Length and Taper

Observation of this structure during high water events of the winter of 2002 and 2003 showed that it was quite effective in preventing further severe bank erosion during these moderately high flow events. It also indicated it is not creating a problem for the site. In one sense it appears this "barb" has stabilized much of the southern bank and riparian areas in question. It is deflecting much of the flow back into the 1995 Sucker Creek channel. It is not causing additional bank degradation downstream.

Although the barb is angled downstream in relation to the 1995 Sucker Creek channel, it is not angled downstream in relation to the top of the bank of the southern meander, where the severe erosion and scour has previously and is currently occurring. A large deep pool has developed adjacent to this structure which provides good in-stream habitat. It also has provided protection for the downstream end of the Corps 1971 riprap and the failing bank downstream. For these reasons, we recommend against additional changes beyond those recommended in our August 7, 2003 report. Other major changes or different riprap placement would require substantial disturbance of the streambed. Significantly increasing the upstream angling of this barb would obliterate the large deep pool, which would result in adverse impacts on the fishery habitat. Shortening its length to a total of 60 feet will still allow the stream to run largely in the 1995 channel, which is better for the long-term health of the fishery for the reasons set forth in our August 7, 2003 report.

We recommend against any change to the preexisting Corps riprap or the "tie" of this barb to secure and buttress the downstream end of the 1971 Corps bank protection. This shortened and tapered "structure" would remain an effective first barb, allowing bankfull flows over the top of most of its length (as was observed during the winter of 2002-2003).

10. Barb Angle

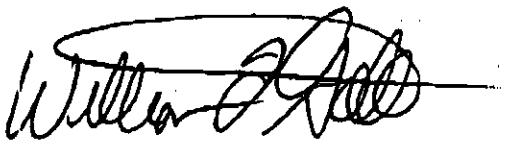
Although the Corps letter does not discuss barb angle, the EPA e-mail does. Section 8.4, Barb Angle, of our August report states that barbs are located on the plan at a 15% degree upstream angle (with allowance during construction for a 5 degree variance, 15° to 20°). Figure 6, Erosion Control, Barb Layout Deign also lists the 15° angle at each barb location. Therefore, while a quick viewing of the plan might indicate the barbs are perpendicular to the bank, in fact, they are not.

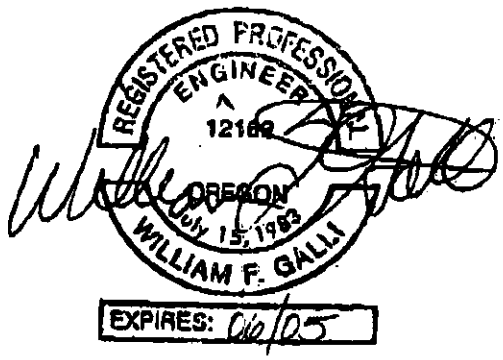
One item that must be remembered about this site is the extremely small radius of this meander bend. With such a tight "turn" angles off the bank of barbs can become somewhat difficult to determine by visual observation. We used a vector analysis as required in Technical Notes No. 12 to arrive at these barb angles. The general trend of the "top of bank" at each barb location (where the base of the barb touches the top of the bank) was used as the base line from which each perpendicular line and subsequent upstream angle for the barbs were chosen. The flatter 15° angle was chosen due to the extreme curvature of the bank. Combined with the bank curvature the result is a 25° to 35° change from one barb to the next.

Summary
We hope our comments will be sufficient to clarify in the agencies' minds that our August 7, 2003 plan is in compliance with the Technical Notes and BIOP as applied to this specific site. We hope it will also give the agencies a better understanding of the specific conditions of this site and how the plan was designed to stabilize this heretofore transitory bank.

Finally, although the in-water work period closed as of September 15, 2003, we have had waivers granted for up to two to four weeks after the closure of the in-water work period to allow planned work to be finished. This is particularly the case when streamflows remain low and portions of the project can be completed in 1 to 3 days (during forecast predictions for dry weather). We recommend you request the ability to complete the plan yet this season to avoid further risks of bank erosion. Please call if you have any questions.

Respectfully Submitted,
THE GALLI GROUP
Geotechnical Consultants





William F. Galli, P.E.
Principal Engineer

cc: Clarence Greenwood
attachment: Construction Specifications - Addendum No. 1

THE GALLI GROUP
Geotechnical Consulting

02-2846-01
October 13, 2003

Robert Kerivan
Bridgeview Vineyard
4210 Holland Loop Road
Cave Junction, OR 97523

Subject: **CONSTRUCTION SPECIFICATIONS- ADDENDUM NO. 1**

This should be considered as a permanent part of the Construction Specifications contained in Appendix B of our August 7, 2003 report.

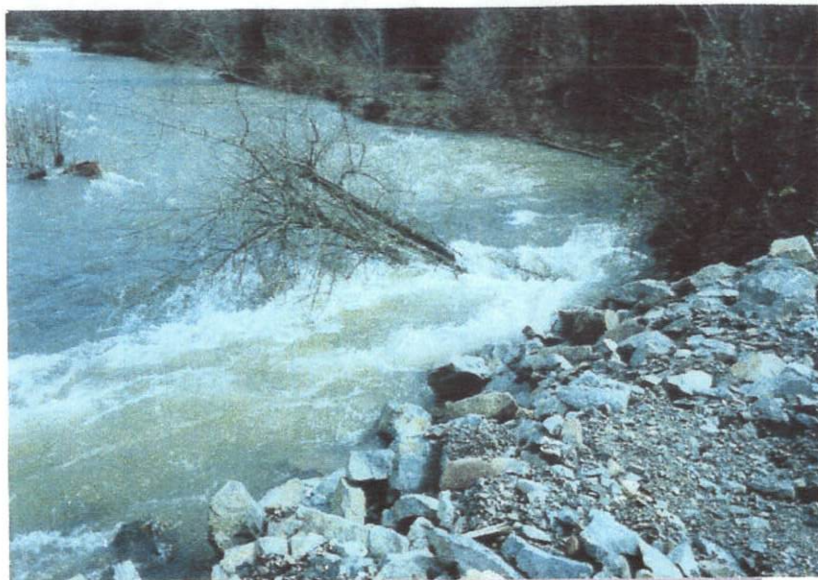
Amend Item No. 16 to include the following: All rip rap stones must be individually placed to maximize stone interlock and minimize exposed surface to streamflow. In no case shall end-dumping be allowed.

Amend Item No. 19 to include the following: All topsoil areas that have been disturbed or densified by construction activity shall have the surface soils scarified to a depth of 4-inches for a distance of 50-feet back from the top of the bank, except where less than 50 feet distance exists between the top of the bank and the vineyard access road along this north side of the vineyard. In this case, the scarification and subsequent revegetation must stop at the streamside edge of the access road.

William F. Galli, P.E.
Principal Engineer

EXHIBIT B
PG 1 OF 1

612 NW Third Street, Grants Pass, Oregon 97526 • Phone (541) 955-1611 • Fax (541) 955-8150



[redacted]

EXHIBIT c
PG 1 OF 2

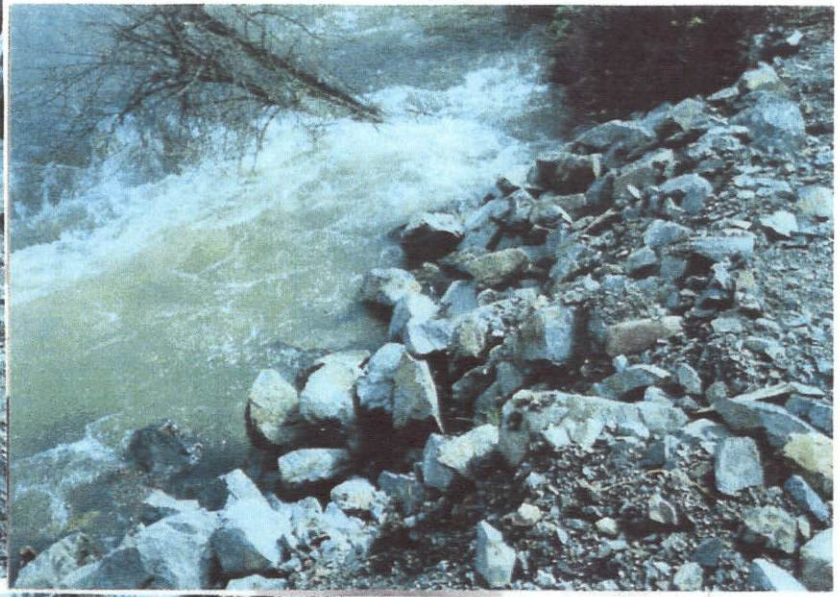


EXHIBIT C
PG 2 OF 2

EXHIBIT
D 1/4


EXHIBIT
D 214

EXHIBIT
tabbies
D 3/4

EXHIBIT
D 4/4

EXHIBIT

tabbies

F